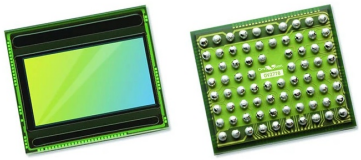

OMNIVISION OV2778 Automative Image Sensor User Guide

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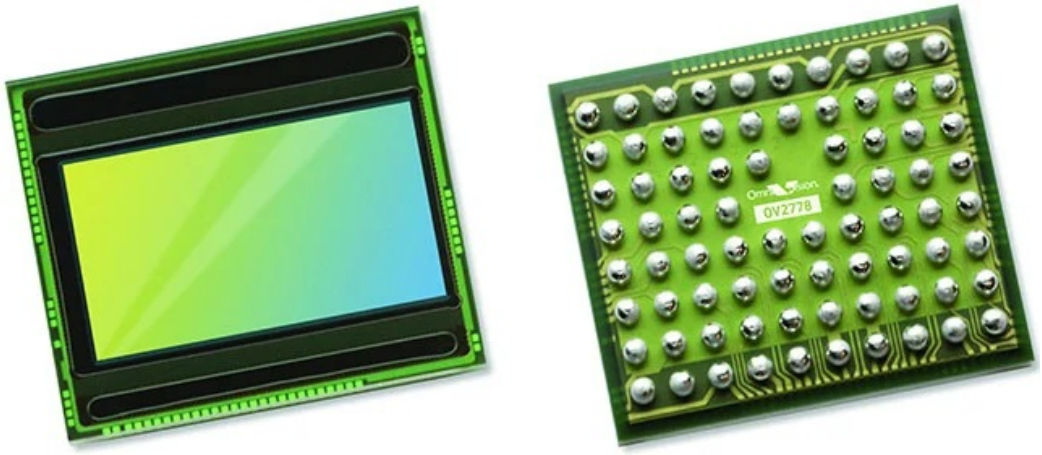

2MP RGB-IR Image Sensor Provides Industry's Smallest Package and Best Value for Cabin Monitoring Segment

OMNIVISION's OV2778 is a 2 megapixel automotive image sensor that offers the best value of any 2MP RGB-IR sensor for cabin- and occupant-monitoring. Built on our OmniBSIITM-2 Deep WeIITM' pixel technology, the OV2778 offers excellent low and NIR light sensitivity, with high dynamic range and advanced ASIL features, reducing artifacts and increasing system reliability. The sensor is ideal for interior applications such as occupant monitoring, detecting packages and unattended children, as well as videoconferencing. It comes in the smallest package available for automotive in-cabin applications—a 6.5 x 5.7 mm automotive CSP package—enabling the smallest camera sizes possible for unobtrusive placement inside the vehicle. It also offers advanced ASIL functional safety, which is important when being integrated as part of an ADAS system.

The OV2778 delivers a 16-bit linear output from a single exposure with best-in-class low-light sensitivity. The dynamic range can be increased to 120 dB, while minimizing motion artifacts from the second exposure. With leading low-light performance, this sensor is ideally suited for in-cabin applications. Additionally, the integrated RGB-IR, 4×4 pattern color filter, along with an external frame synchronization capability allows the sensor to yield the top performance across all lighting conditions.

This image sensor is AEC-Q100 Grade 2 certified for automotive applications. It also benefits from the large

installed base of its predecessor, enabling the OV2778 to be easily integrated into existing automotive platforms.

Find out more at www.ovt.com.

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Applications

• interior and in-cabin applications – occupant monitoring – rear occupant / child detection

Product Features

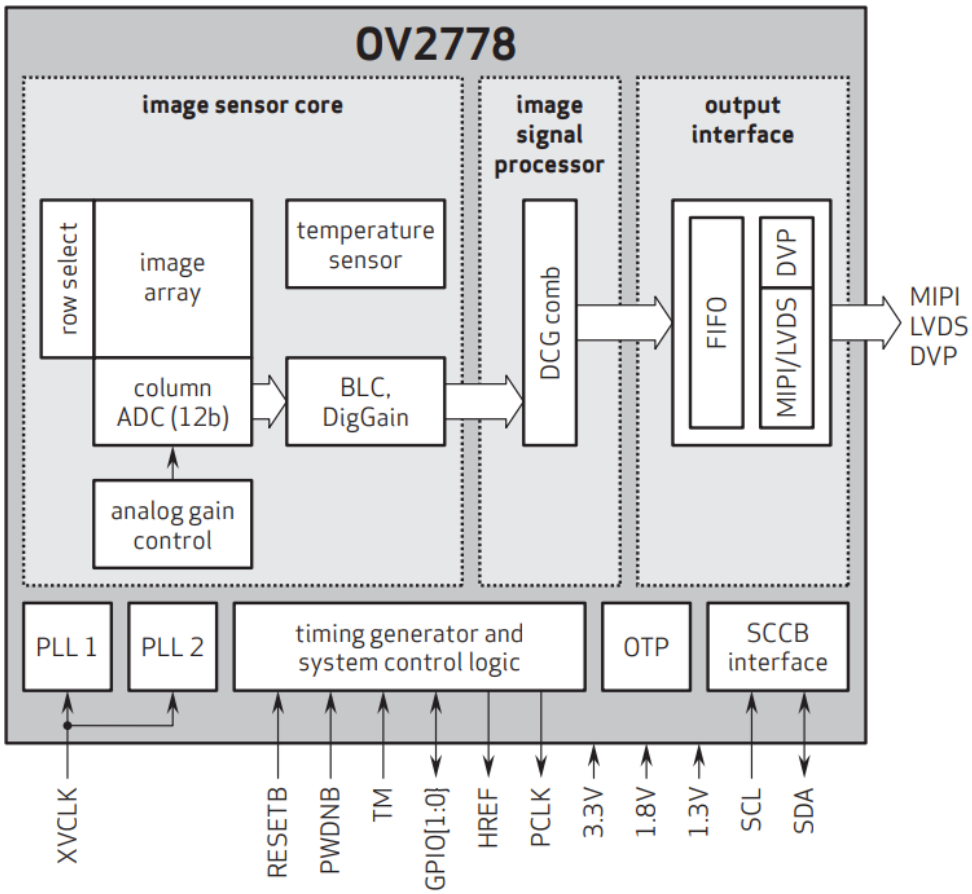
- support for image size: – 1920 x 1080 – VGA – QVGA, any cropped size
- high dynamic range
- high sensitivity
- low power consumption
- image sensor processor functions: – HDR combination – automatic black level correction – parcel detection
- supported output formats: RGB-Ir 4×4 pattern
- SCCB for register programming
- high speed serial data transfer with MIPI CSI-2/LVDS
- parallel 12-bit DVP output
- external frame synchronization capability
- embedded temperature sensor
- one-time programmable (OTP) memory

Technical Specifications

- active array size: 1920 x 1080
- maximum image transfer rate: – full resolution: 30 fps
- power supply: – analog: 3.14 – 3.47V – digital: 1.2 – 1.4V – DOVDD: 1.7 – 1.9V – AVDD: 1.7 – 1.9V

- power requirements: – active: 395 mW – software standby: 10 mW
- temperature range: – operating: -40°C to +105°C sensor ambient temperature and -40°C to +125°C junction temperature
- output interfaces: up to 4-lane MIPI CSI-2/LVDS, 12-bit DVP
- lens size: 1/2.9″
- lens chief ray angle: 15°
- output formats: linear – 12-bit RAW, 10-bit compressed RAW; single exposure HDR – 16-bit combined RAW, 12-bit compressed combined RAW, 2×12 bit RAW; dual exposure HDR -16-bit combined RAW + 12-bit VS RAW, 12-bit compressed combined RAW + 12-bit VS RAW, 3×12 bit RAW, 3×10 bit combined RAW, 12-bit (10-bit) RAW (HCG or LCG) + 12-bit (10-bit) VS
- scan mode: progressive
- shutter: rolling shutter
- pixel size: 2.8 pm x 2.8 pm
- image area: 5482.35 pm x 3202 pm

Functional Block Diagram



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Documents / Resources

	OMNIVISION OV2778 Automative Image Sensor [pdf] User Guide OV2778, Automative Image Sensor, Image Sensor, OV2778, Sensor

Manuals+.